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86. Prize Problem ; $2.50 for the best solution.

Two spheres of equal size are in motion on a smooth horizontal plane, and, on meeting, their plane of contact coincides with the plane of the meridian. The sphere on the west side is perfectly elastic and weighs 4½ pounds, while previous to the impact it was moving N. 30° E. with a velocity of 15 feet per second. The sphere on the east side is perfectly plastic and weighs 6½ pounds, while previous to the impact it was moving N. 45° W. with a velocity of 10 feet per second. Determine the motions of the spheres after the impact.

⁂ Solutions of these problems should be sent to B. F. Finkel not later than April 10.

EDITORIALS.

Our valued contributor, J. M. Bandy, A. M., Ph. D., is now engaged as chief engineer of the Cape Fear and Northern Railroad.

The mathematical text-books formerly published by Leach, Shewell & Sanborn, of Boston, have been purchased by D. C. Heath & Co. Among the most valuable of these text-books are Osborne's *Differential and Integral Calculus*, Nichols' *Analytic Geometry*, and Fine's *Number System of Algebra.*

Through the kindness of a subscriber, who desires that his name should not be mentioned, we are able to offer a prize for the best solution of Problem 86, Mechanics, published in this issue, furnished by a person under the age of twenty-one years. All solutions must be forwarded to B. F. Finkel on or before May 1, 1899. The object of the donor in giving this prize is to create an interest in mathematics among teachers and young people. The first, second, and third solutions in order of neatness and accuracy will be published.

BOOKS AND PERIODICALS.

Plane and Solid Geometry. By James Howard Gore, Ph. D., Professor of Mathematics in Columbian University, Author of Elements of Geodesy, History of Geodesy, Bibliography of Geodesy, etc., etc. 8vo. Cloth, 210 pages. Price, $1.00. New York : Longmans, Green & Co.

The object of this work seems to be to bring the study of Geometry within the minimum time requisite to gain a fair knowledge of it, in order that a proportionate amount of time may be given to other subjects. The author holds that since other sciences, and even language and philosophy, claim disciplinary merit equal to that possessed by mathematics, the time has come when we can afford to hearken to the demands of the utilitarians and give up those refinements in mathematics which have been retained for the mental discipline they bring about, but which are wholly lacking in practical application.

From this point of view, the author has eliminated from this work all propositions that are not of practical value or needed in the demonstrations of such propositions, and thus about half the matter usually found in geometries is omitted. The author makes one very sound statement in his preface, viz., "While symbols and equational statements have the advantage of brevity and convey information to the mind through its most receptive channel,—eye,—still they discourage the use of language, and hence fail to develop by example and precept the employment of accurate and precise forms of expression." While this statement is true, yet the very concise and symbolic statements made in most of our recent texts on geometry offer no serious objection, if the teacher is careful to see that the student does not fall into a careless and slovenly mode of expression.

We do not agree with the author's utilitarian view except in cases where the object of the study is utilitarian in purpose. In college courses, no subject should be studied simply with a view of its practical value in after life. If such were the aim, many subjects, as for example, Latin, Greek, Chemistry, many branches of Mathematics, etc., might be omitted from the college course. But since the object of the course is disciplinary rather than utilitarian, mathematics must and always will receive its proportionate time, and hence many of the modern refinements of geometry should remain that the study of the subject may result in the highest mental development. B. F. F.

Problèms de Geometrie Élémentaire Groupés D'aprés les Méthodes à Employer pour leur résolutions. Par Ivan Alexandroff, Professeur de Mathematiques au Lycée de Tambov (Russie), Traduit du russie, sur la sixiène èdition, Par D. Aitoff. 8vo. Paper Cover, 156 pages. Paris, France : Librairie Scientifique A. Hermann.

In this work are discussed problems on the construction of geometric figures, methods of geometric loci, method of similitude, method of contrary problems, method of symmetry, method of translation, method of rotation about an axis, method of rotation about a point, method of inversion, and application of algebra to geometry. Under each of these subjects are given demonstrations of type-propositions, that is, propositions setting forth the chief principles employed in the demonstrations of the propositions under the subject considered. For example, under *Problems on the Similitude of Figures*, the following problem comes first: Construct a triangle, having given an angle, the ratio of the sides which contain this angle and the radius of the inscribed circle. This problem is solved and its solution illustrated with a figure. Then comes this problem: Construct a triangle, having given an angle α, the length s of the bisector of this angle and the ratio m/n of the segments determined on the side opposite to α by the altitude from the vertex of this angle. This problem is also solved and the solution illustrated with a figure. Then comes this problem: Having given an angle ABC and a point M on the interior of this angle, find on the side BC a point X equidistant from the side AB and from the point M. Six other problems whose solutions are given follow. These are followed by a large number of exercises. This work in the hands of a good teacher will add interest in his work and profit to his class. B. F. F.

Sur la Résolution de L' Equation du Troisieme Degré. By Dr. Alexander Macfarlane.

In this paper Dr. Macfarlane has applied the hyperbolic calculus to the solution of the cubic equation, and the Method of Cardan and Trigonometric Method are united in a general method applicable to all cases. B. F. F.

Calcul de Généralization. Par G. Oltramare Doyen de la Faculté des Sciences de L' Université de Genéve. Paper Cover, 192 pages. Paris, France : Librairie Scientifique A. Hermann.